

## **Reduction of Hexavalent Chromium in Ground Water with Hydrogen Peroxide and pH Control**

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Ground water in the central west part of the Lawrence Livermore National Laboratory (LLNL) Livermore site contains volatile organic compounds (VOCs) and hexavalent chromium. The predominant VOC is trichloroethene (TCE) which has a concentration of about 70 ppb. The concentration of hexavalent chromium is about 25 ppb. The ground water from this area is treated at Treatment Facility B (TFB) where VOCs are destroyed by ultraviolet rays and airstripping.

In search of a solution for reduction of the hexavalent chromium, a series of benchtop tests were conducted in the laboratory. The variable parameters considered were (1) concentration of  $\text{H}_2\text{O}_2$ , (2) pH of ground water, and (3) residence time of  $\text{H}_2\text{O}_2$ . The laboratory studies conducted have shown that reduction of hexavalent chromium can be achieved by addressing all three parameters, namely, lowering the pH of ground water to 7 or less, adding at least 10 ppm of  $\text{H}_2\text{O}_2$ , and allowing at least 20 minutes of reaction time.

To verify the results of the benchtop tests, some experiments will be conducted in the treatment facility. This means some modifications will be made to the facility. The field tests will be conducted during the first two weeks of November 1995. The test results will be presented at the TIE conference.

Work performed under the auspices of the U.S. Department of Energy by the Lawrence Livermore National Laboratory under Contract W-7405-Eng-48.